

0978390 022104  
00220 0688/60

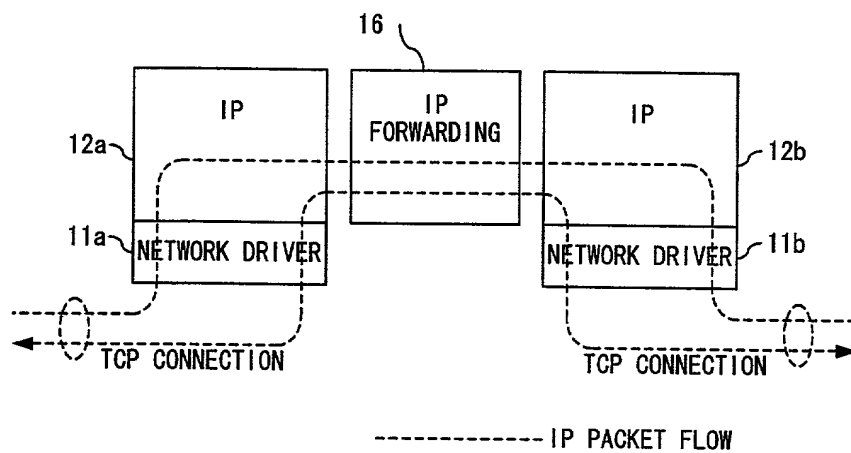


FIG. 1 PRIOR ART

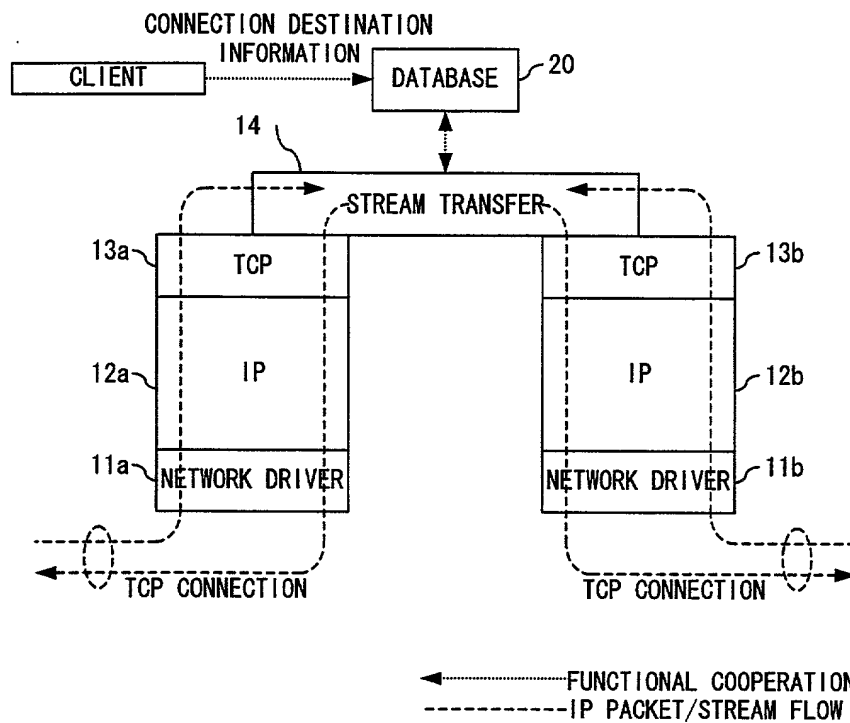


FIG. 2 PRIOR ART

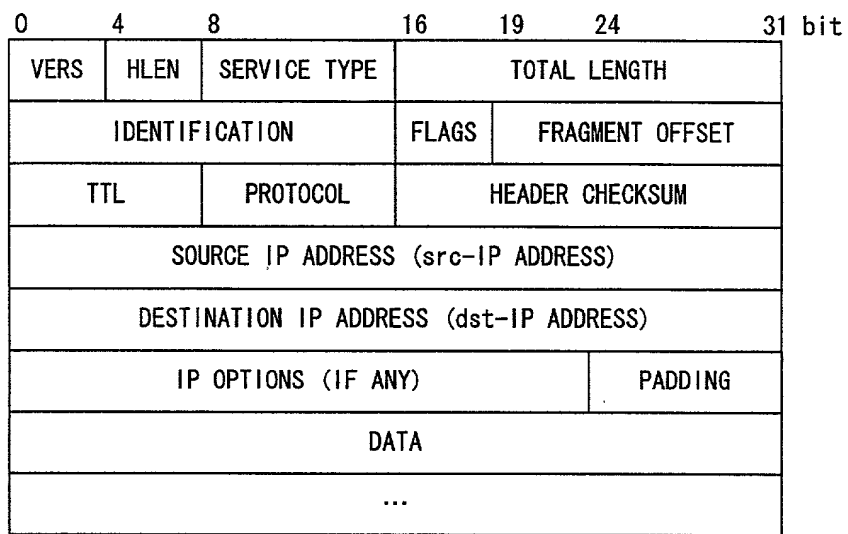


FIG. 3 PRIOR ART

0978390-022404

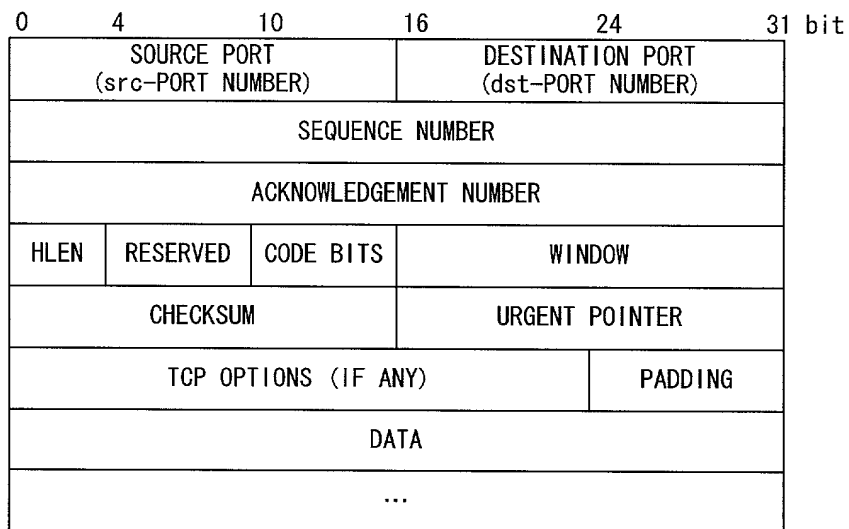


FIG. 4 PRIOR ART

FIG. 4 PRIOR ART

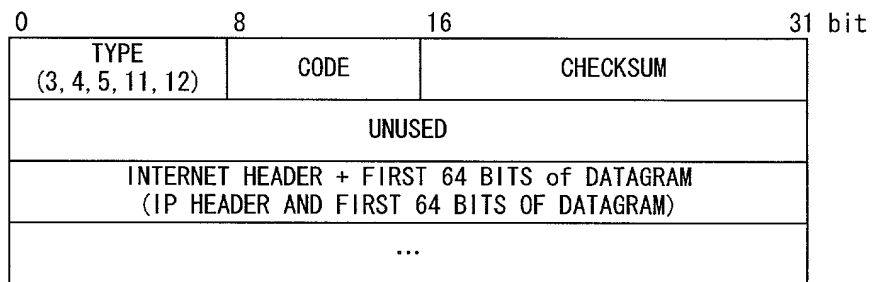


FIG. 5 PRIOR ART

0978390 06588/90  
"07220"

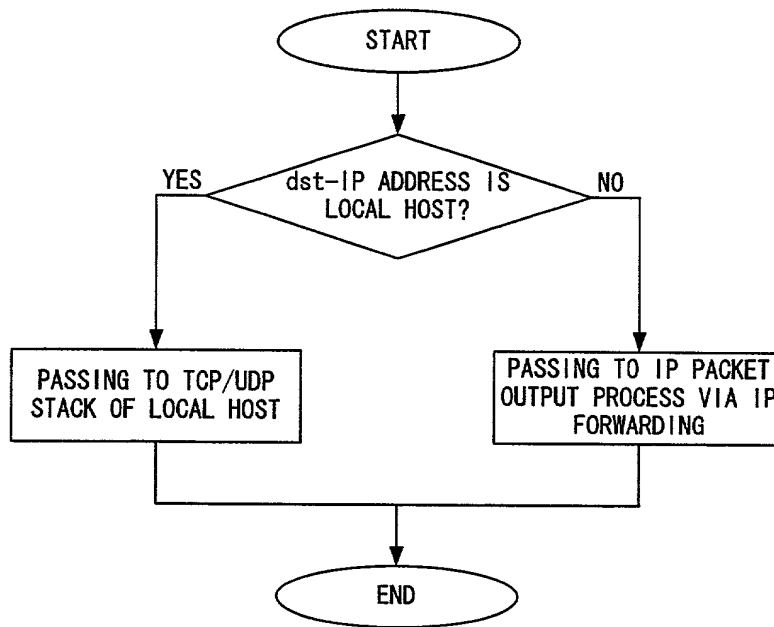


FIG. 6 PRIOR ART

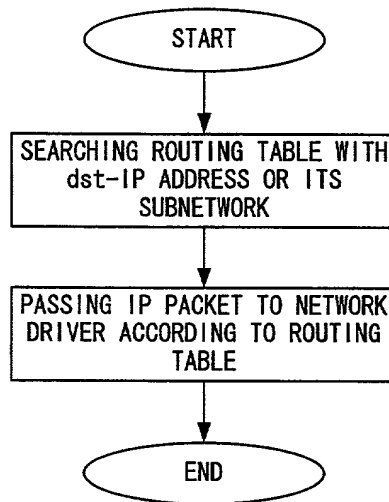


FIG. 7 PRIOR ART

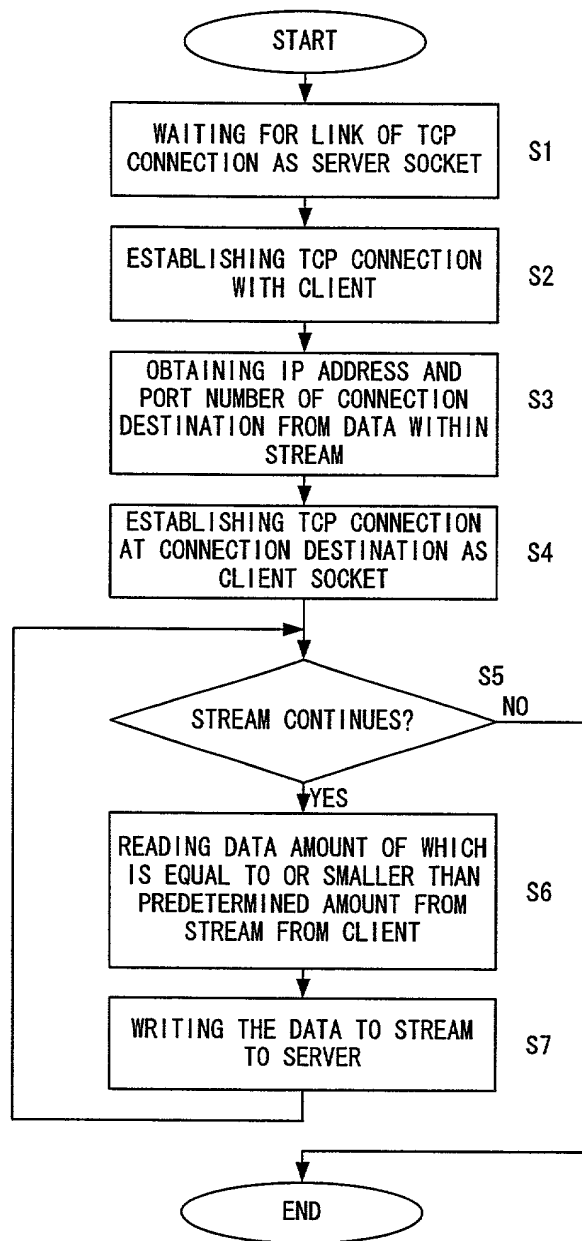


FIG. 8 PRIOR ART



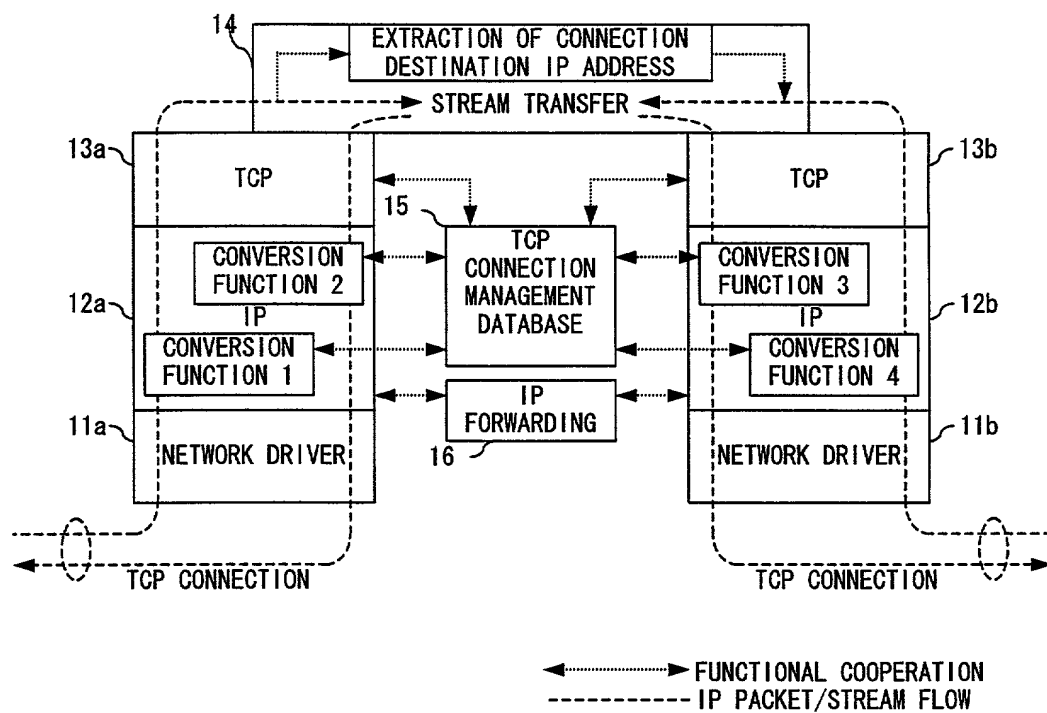


FIG. 9

The diagram illustrates the flow of a packet through a router. The packet enters from Host A, passes through the router, and exits towards Host B. The packet's source and destination IP and port addresses are shown at each stage.

**Host A:** The packet is received with source IP: a1, source port: p1, destination IP: a4, and destination port: p4. The router interface is labeled (a1, p1).

**Router:** The packet is received with source IP: a1, source port: p1, destination IP: a4, and destination port: p4. The router interface is labeled (a2, -). The packet is then forwarded to Host B with source IP: a3, source port: -, destination IP: a4, and destination port: p4. The router interface is labeled (a3, -).

**Host B:** The packet is received with source IP: a4, source port: p4, destination IP: a1, and destination port: p1. The router interface is labeled (a4, p4).

**TCP/IP packet details:**

- Packet 1 (Host A to Router):** src-IP: a1, src-port: p1, dst-IP: a4, dst-port: p4.
- Packet 2 (Router to Host B):** src-IP: a3, src-port: -, dst-IP: a4, dst-port: p4.
- Packet 3 (Host B to Router):** src-IP: a4, src-port: p4, dst-IP: a1, dst-port: p1.
- Packet 4 (Router to Host A):** src-IP: a4, src-port: p4, dst-IP: a1, dst-port: p1.

FIG. 10A

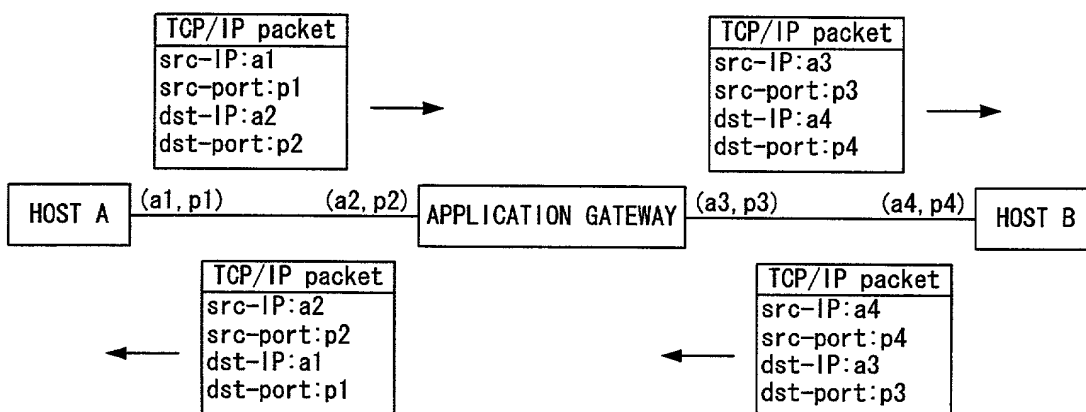


FIG. 10B

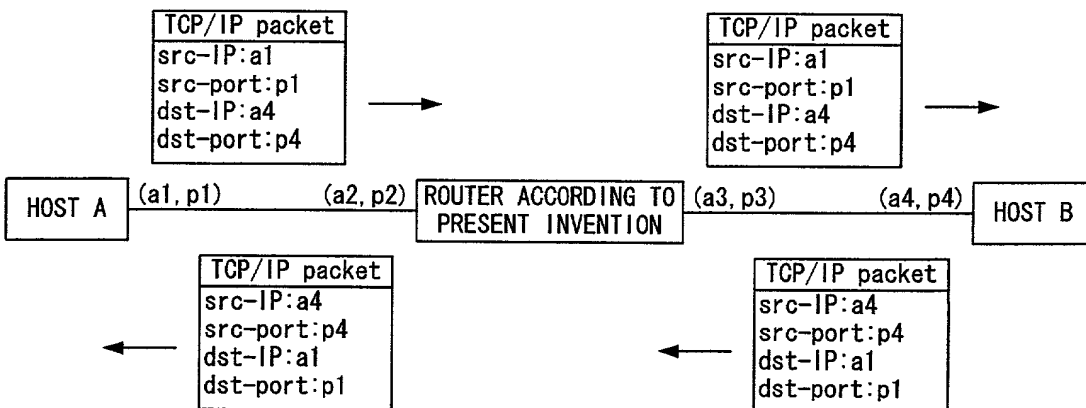


FIG. 10C

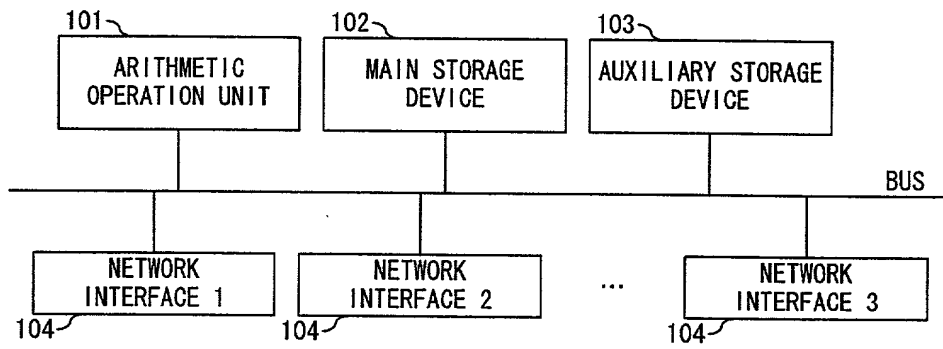
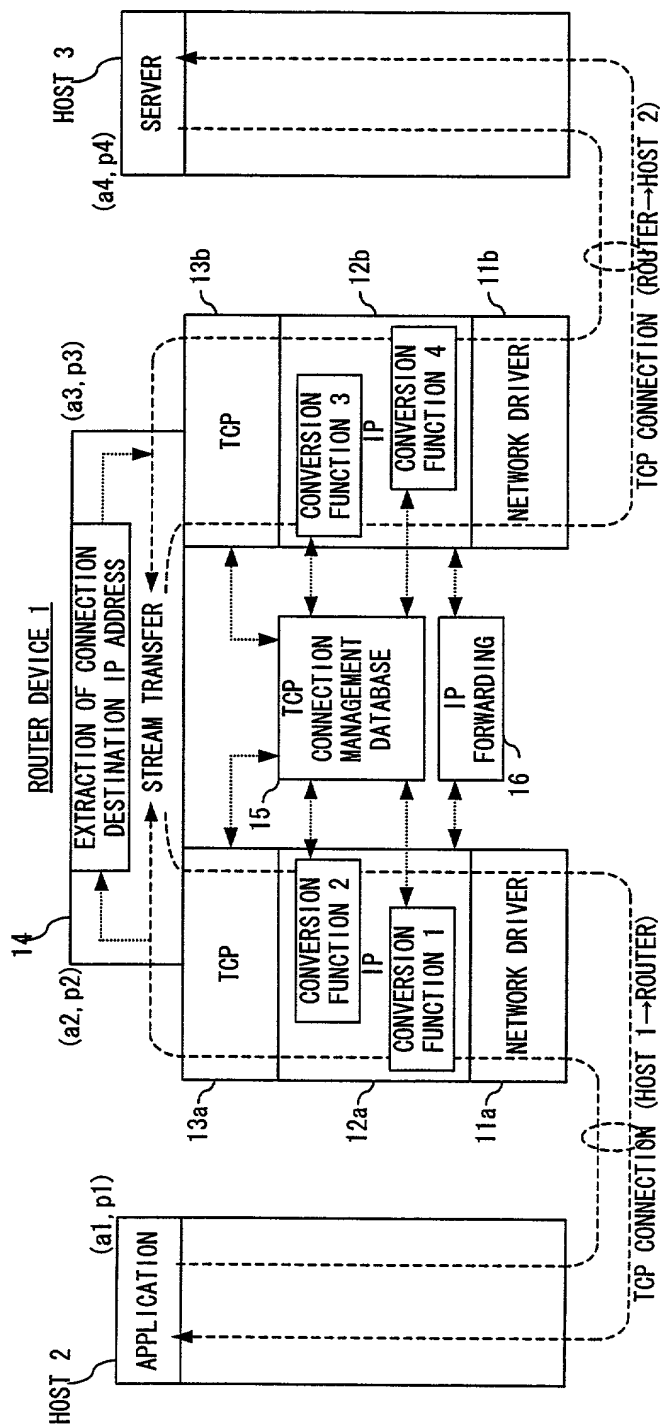


FIG. 11



a1~a4: IP ADDRESSES OF HOSTS  
 p1: CLIENT PORT NUMBER OF APPLICATION (DYNAMICALLY ASSIGNED)  
 p2: SERVER PORT OF STREAM TRANSFER SOFTWARE (FIXED VALUE)  
 p3: CLIENT PORT NUMBER OF STREAM TRANSFER SOFTWARE (DYNAMICALLY ASSIGNED)  
 p4: SERVER PORT OF APPLICATION SERVER (FIXED VALUE FOR EACH APPLICATION SERVER)

FIG. 12

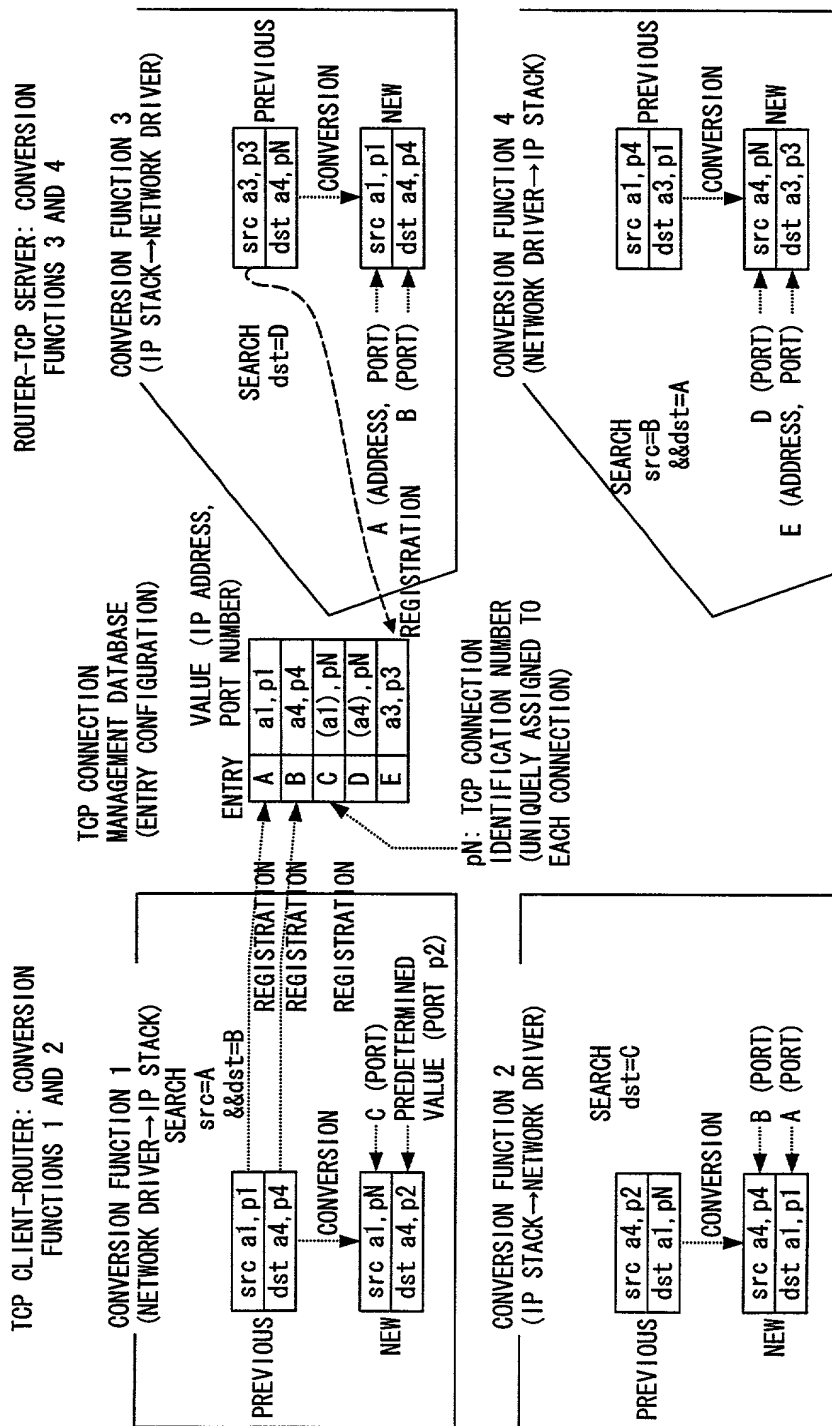


FIG. 13

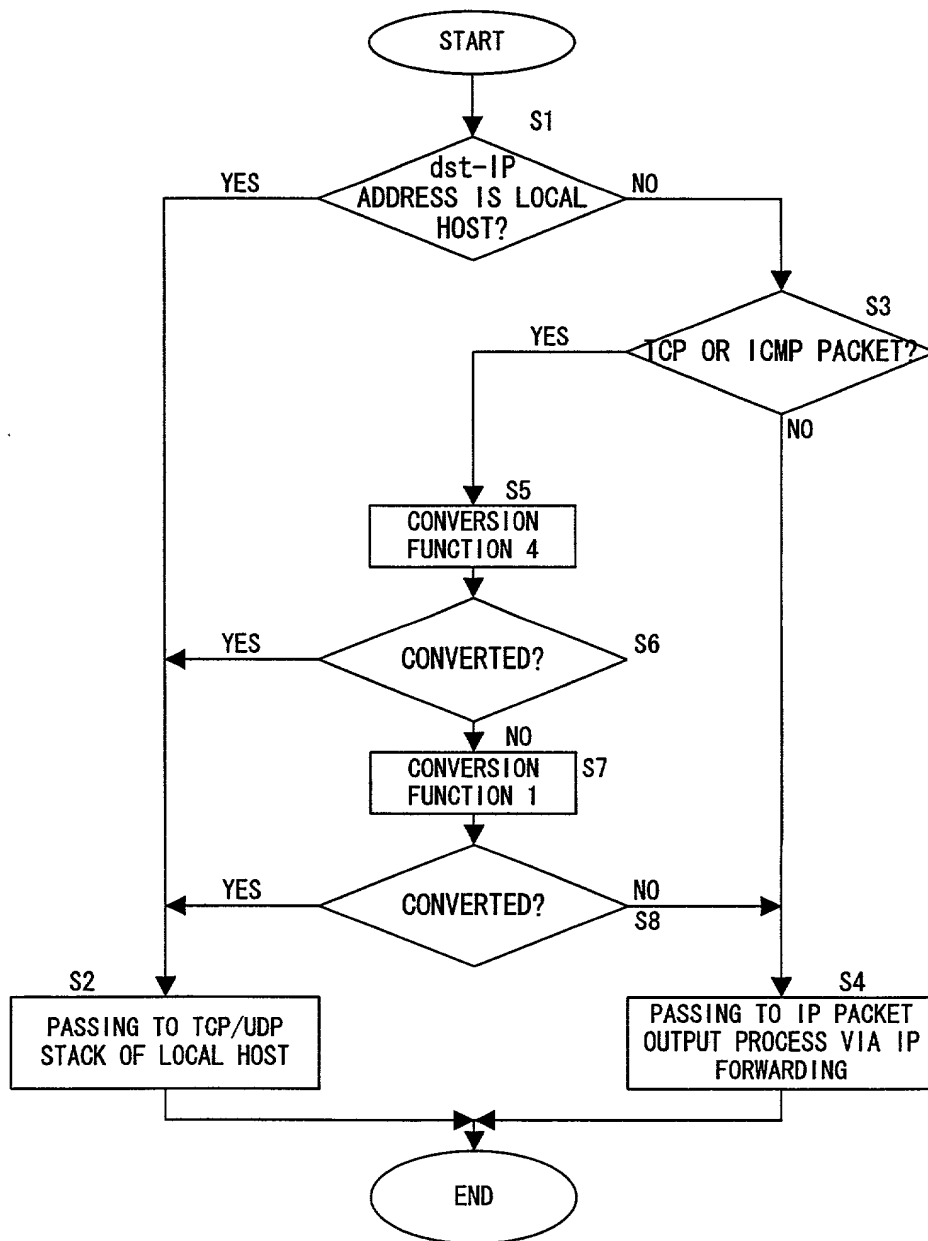


FIG. 14

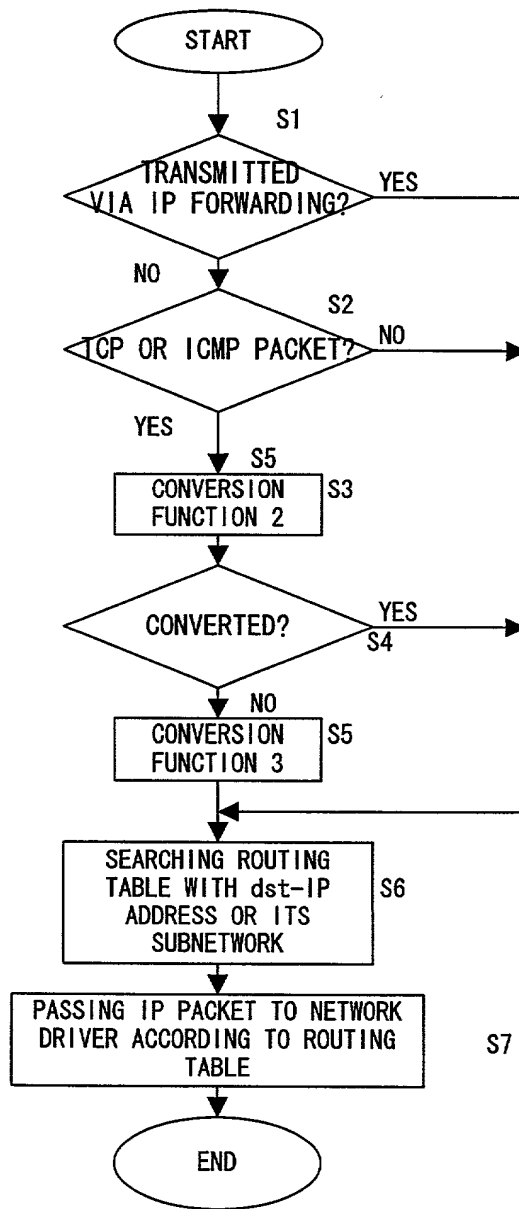
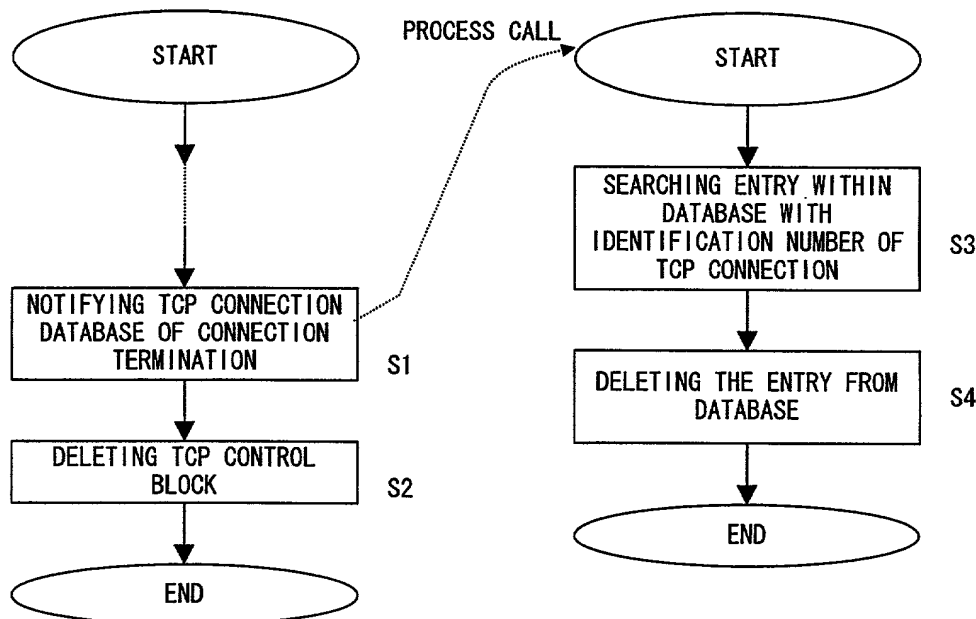


FIG. 15

## CONNECTION TERMINATION PROCESS WITHIN TCP STACK

### CONNECTION TERMINATION PROCESS WITHIN DATABASE OF PRESENT INVENTION





SEARCHING DATABASE FOR ENTRY  
INCLUDING src-IP ADDRESS WITHIN TCP/IP  
PACKET WHICH MATCHES IP ADDRESS OF  
ITEM A, src-PORT NUMBER WHICH MATCHES  
PORT NUMBER OF ITEM A, dst-IP ADDRESS  
WHICH MATCHES IP ADDRESS OF ITEM B AND  
dst-PORT NUMBER WHICH MATCHES PORT  
NUMBER OF ITEM B

```

graph TD
    S2((S2)) --> D1{THE ENTRY EXISTS?}
    D1 -- YES --> S3((S3))
    D1 -- NO --> S4((S4))
    S3 --> S5((S5))
    S4 --> S5
    S5 --> S6((S6))
    S6 --> S7((S7))
    S7 --> S8((S8))
    S8 --> S9((S9))
    S9 --> S10((S10))
    S10 --> S11((S11))
    S11 --> S12((S12))
    S12 --> S13((S13))
    S13 --> S14((S14))
    S14 --> S15((S15))
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    S217 --> S218((S218))
    S218 --> S219((S219))
    S219 --> S220((S220))
    S220 --> S
```

S3

COMPLYING WITH  
RESTRICTION ON NUMBER OF  
CONNECTIONS?

NO

S8

SETTING PORT NUMBER OF  
DATA OF ITEM C IN src-  
PORT NUMBER WITHIN  
TCP/IP PACKET

S9  
 SETTING SERVER PORT  
 NUMBER OF STREAM  
 TRANSFER SOFTWARE IN  
 dst-PORT NUMBER WITHIN  
 TCP/IP PACKET

S10      ↓  
RECALCULATING CHECKSUM  
OF IP PACKET

S2a

IS A PACKET  
IN QUESTION IS A REQUEST  
FOR TCP/IP CONNECTION  
ESTABLISHMENT?

GENERATING NEW ENTRY IN MANAGEMENT DATABASE	S4
--	----

REGISTERING src-IP  
ADDRESS AND src-PORT  
NUMBER TO ITEM A WITHIN  
THE ENTRY

REGISTERING dst-IP  
ADDRESS AND dst-PORT  
NUMBER TO DATA ITEM B  
WITHIN THE ENTRY

REGISTERING DUPLICATES IP  
ADDRESSES OF ITEMS A AND  
B TO IP ADDRESS OF DATA  
ITEMS C AND D  
RESPECTIVELY WITHIN THE  
ENTRY AND REGISTERING  
IDENTIFICATION NUMBER OF  
TCP CONNECTION IN PORT  
NUMBER OF DATA ITEMS C  
AND D WITHIN THE ENTRY

FND

FIG. 17

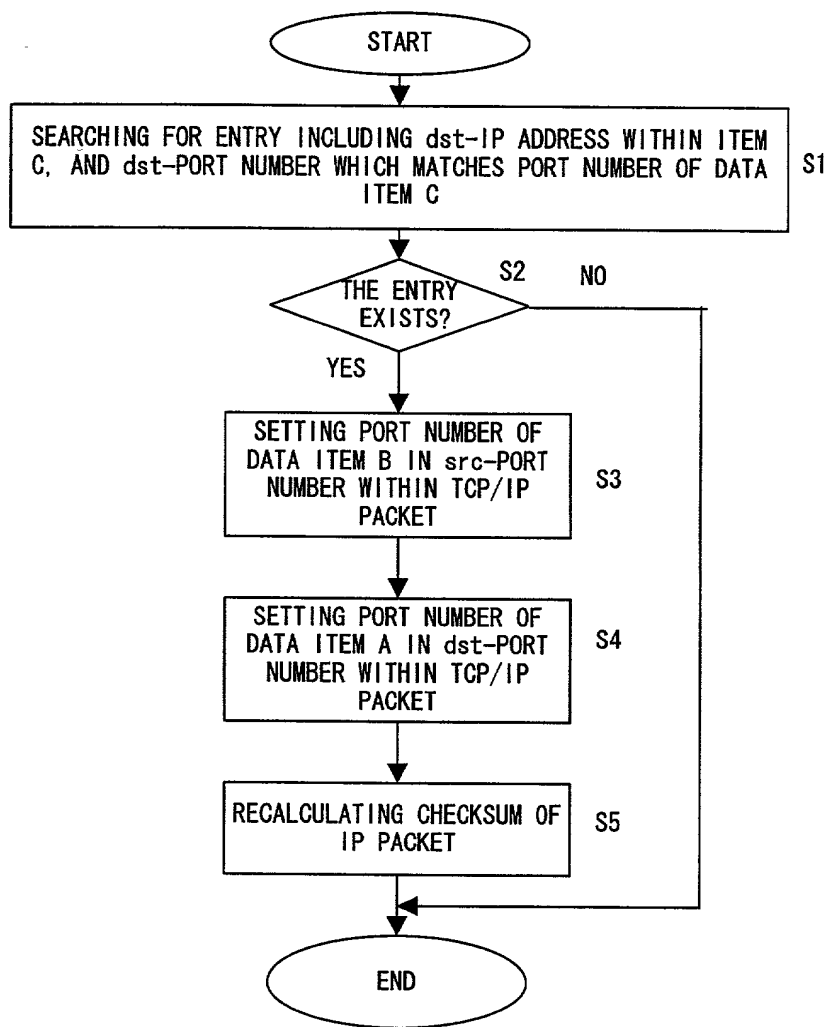


FIG. 18

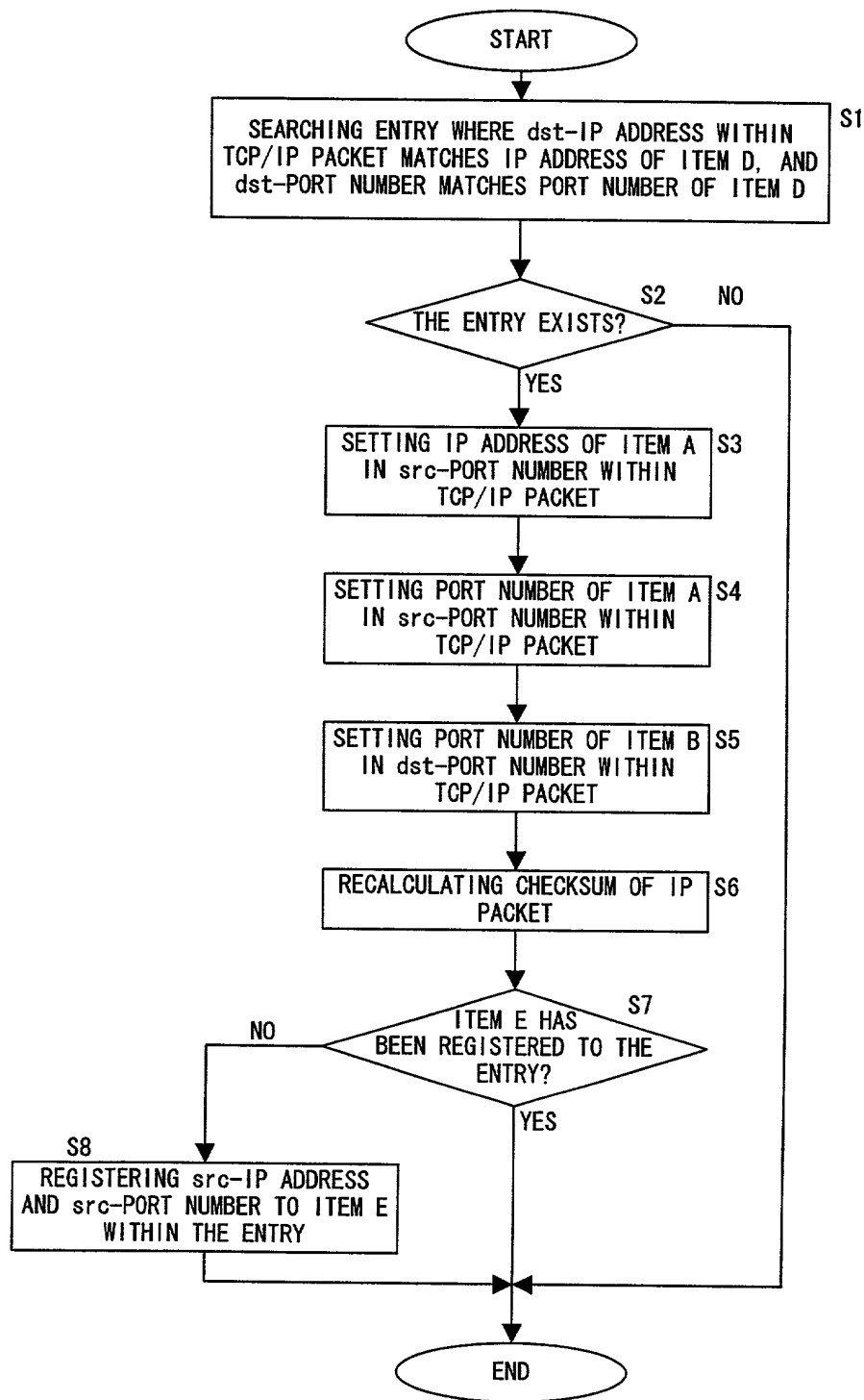
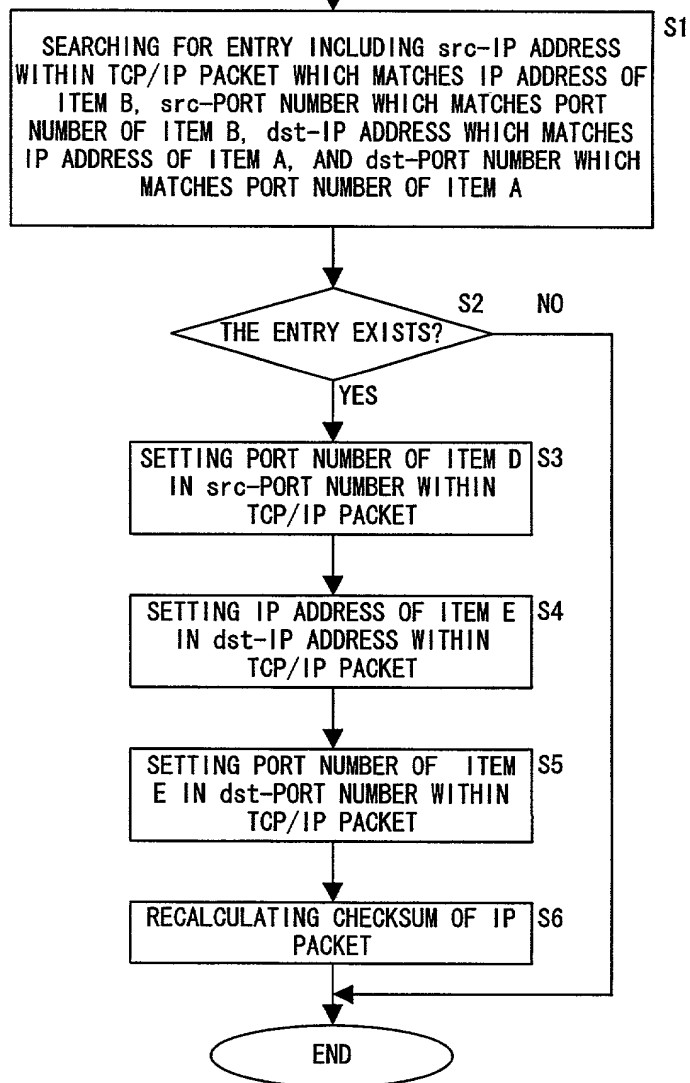


FIG. 19

```
graph TD
    START([START]) --> A1[1]
    A1 --> A2[2]
    A2 --> A3[3]
    A3 --> A4[4]
    A4 --> A5[5]
    A5 --> A6[6]
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    A232 --&
```



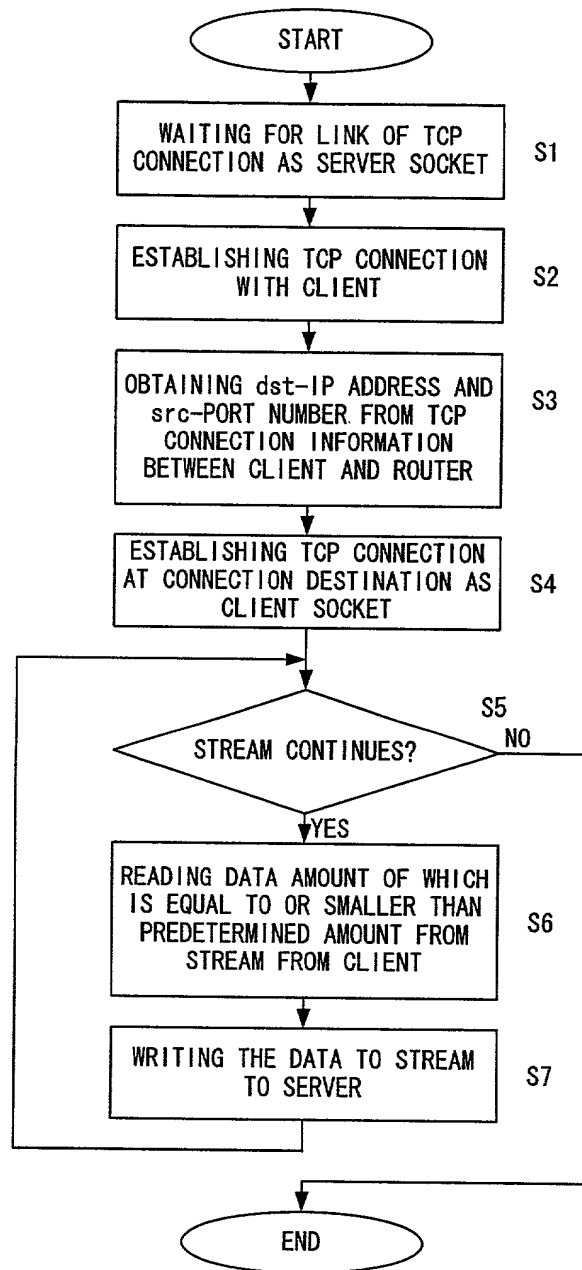


FIG. 21

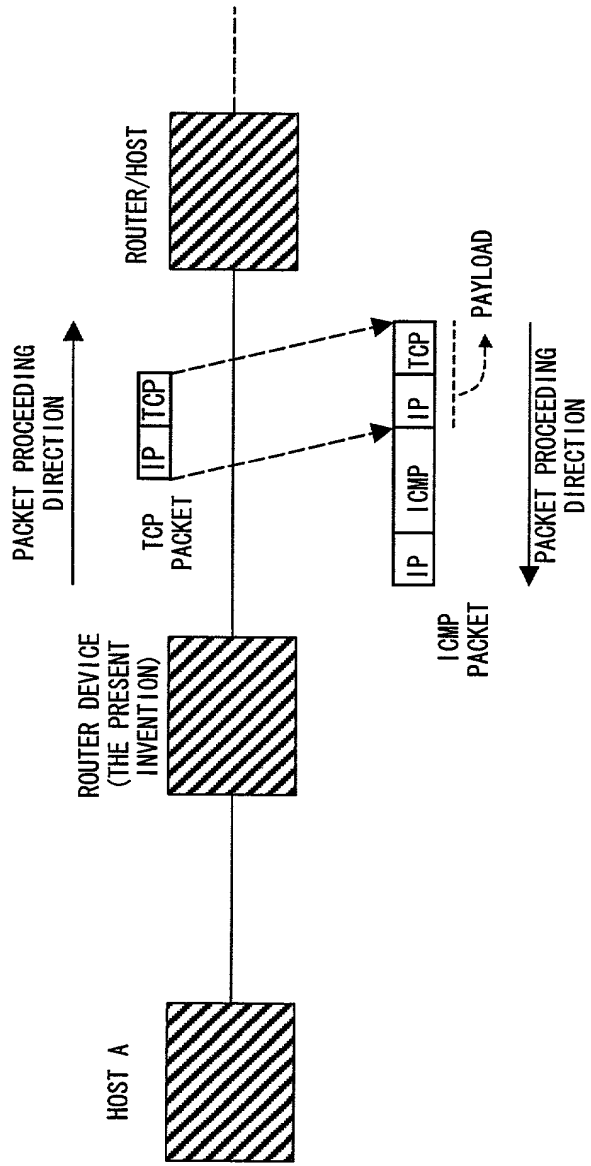


FIG. 22

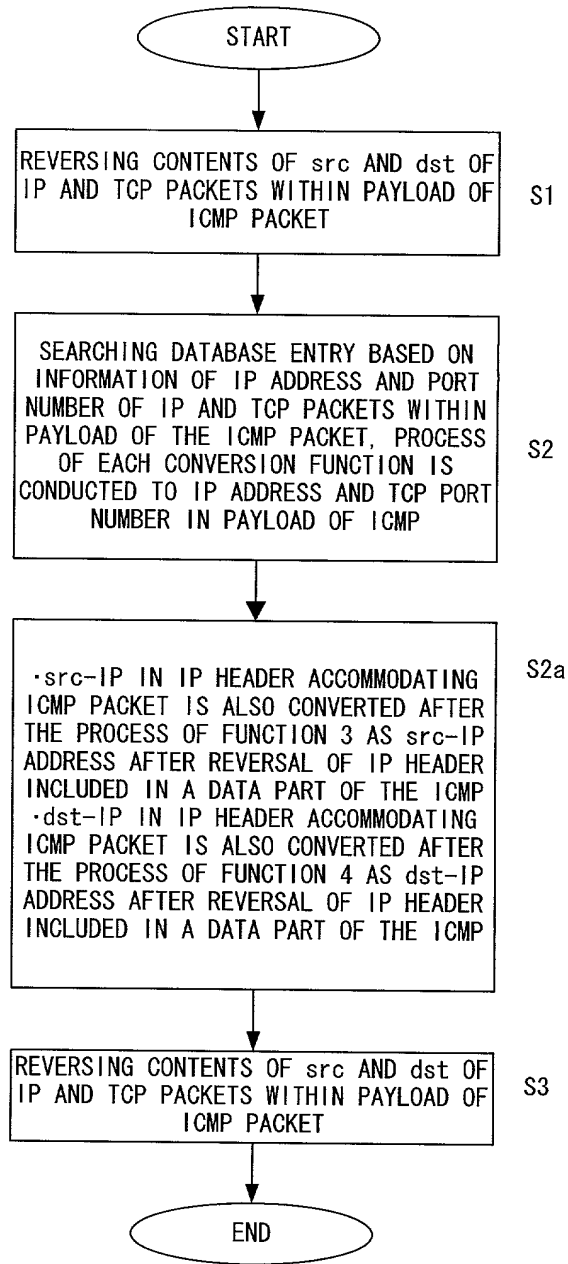


FIG. 23